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**Nuvve Corporation Comments on BESTFIT Innovative Charging Solutions, Docket Number 19-TRAN-02**

*Additional submitted attachment is included below.*

## **1. Background and Interest**

Nuvve is a San Diego-based technology and services company operating in the U.S. and internationally whose bi-directional vehicle-to-grid (V2G) technology transforms electric vehicles (EVs) into grid resources when those vehicles are plugged in, while guaranteeing the expected level of charge at the time the driver needs it for transportation. These benefits can be realized across all types of EVs including light-duty vehicles (both battery-only and plug-in hybrids) and medium to heavy duty vehicles, such as school buses and other short haul fleets while integrating stationary batteries and demand response resources. While Nuvve is an industry leader in bi-directional technologies, we work in a variety of areas relevant to the broader Vehicle-Grid Integration (VGI) effort in California and around the world. Nuvve knows from our experience that energy industry innovation is moving faster than regulations, markets, and system planning methods can adjust to incorporate novel technologies. In California, we have come to a point where this dynamic is slowing progress toward VGI, causing the state to fall behind other jurisdictions who have been able to adjust their frameworks to accommodate the rapid advancement of VGI and Distributed Energy Resource (DER) technologies more broadly.

The CEC's BESTFIT and ViGIL proposals are commendable efforts to accelerate maturation of the EVSE and VGI industries by enabling new players and new technologies to enter and compete in the California market. The BESTFIT program's identified areas of focus are appropriate guides for smoothing the integration of EVs into the grid and into peoples' lives. We caution, however, that technological readiness should be our guide. These pilots should not unintentionally relegate technologies that are commercial in other jurisdictions to a lower level of technology readiness in California, delaying rollout by requiring them to reprove their viability in new pilots here, nor waste money on technologies are still at the concept stage.

## **2. BESTFIT project types**

The suggested project types cover a wide range of technological readiness. Most of the listed technologies have been piloted before, or in fact have already been rolled out commercially in other jurisdictions. While as stated previously we hope that being part of a pilot will not constitute an unnecessary barrier for state-wide rollout, we similarly worry that the pilots may devote time and resources to technologies that are novel, but have been shown in pilots elsewhere to be insufficiently developed to roll out commercially in timeframes that contribute to California's fast-approaching climate and EV penetration milestones. These pilots should generate outputs that indicate how markets and system planning practices need to flex and adjust to allow industry to move ahead in the absence of consistent technical standards to show the way for more permanent changes.

We know, for example, that current distribution engineering and system planning methods, and associated utility incentive structures, are not designed to account for most of the technologies dedicated to the focus points of increasing utilization and minimizing cost of installation/upgrade deferrals listed in this concept document. Any project that involves technical piloting of these types of technologies must also examine the structural disincentives to commercialization. Enabling monetization of these technologies must be part of the CEC's and indeed the CPUC's vehicle electrification efforts, and fully examining and addressing how the capital expenditure-focused utility model hinders innovation of VGI and DER technologies at the edge of the distribution grid is an absolute necessity if we hope to commercialize these technologies any time in the next decade.

### **3. Recommendations**

- Consider what level of technological readiness is most appropriate for the goals of this program considering relevant timeframes in the larger California VGI Roadmap and tighten the criteria to focus on technologies that fit the desired readiness level
- If technologies are commercialized elsewhere, and/or have had limited rollout in California, either 1) tailor the pilot specifically to address barriers to rollout over the duration of the pilot, or; 2) if barriers are apparent push the technology to other parts of the VGI policy ecosystem, such as the DRIVE OIR (specifically the Transportation Electrification Framework), or the Load Management proceeding, for resolution. The Energy Management Systems mentioned in the

concept document, for example, are standard EVSE features encouraged by utilities in UK and Europe, while efforts to roll out in California by companies such as PowerFlex have been hampered by incompatible utility incentive structures and distribution build-out methods. This technology is mature, and applicable to DERs other than EVs. It should not be treated as an unproven or experimental technology in need of a pilot.

- If technologies have had pilots or commercial rollouts elsewhere, build on that progress instead of seeking to reinvent the wheel for California. The Ubitricity lamp post charging rollout in London, for example, has exposed various issues that could be addressed at the outset such as lack of demarcation of parallel parking space resulting in difficulty getting EVs lined up next to the lamp posts. Technically proving an EV can charge from a lamp post gets California no closer to the goal of ubiquitous charging opportunities if knock-on issues such as parking are ignored when we try to pilot it here.
- Adopt a “fast prototyping”-inspired, iterative approach to new technology rollouts that can be responsive to the outputs of these pilots. Both utilities and regulatory agencies need to adopt streamlined practices to keep pace with technology development. The continuous reporting requirement in this document is good step.

We are pleased to see the CEC taking these steps to facilitate new technologies and companies in the California VGI space and we appreciate the opportunity to comment.

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